



UNIVERSITY EXAMINATIONS

2008/2009 ACADEMIC YEAR

**FOR THE DEGREE OF BACHELOR OF SCIENCE IN
ECONOMICS AND MATHEMATICS**

COURSE CODE: ECON 210

**COURSE TITLE: INTERMEDIATE
MICROECONOMICS**

STREAM: Y2S1

DAY: TUESDAY

TIME: 8.30 – 10.30 A.M.

DATE: 5/8/2008

INSTRUCTIONS:

1. Answer question **ONE** and any other **TWO** questions.
2. Apart from question **ONE**, all other questions carry equal marks. Marks for subdivisions are shown brackets.
3. Calculators are allowed in the examination room provided they are not programmable and cannot store or recall information.
4. Marks will be awarded to candidates who demonstrate clarity and accuracy of presentation.
5. Diagrams should be used where helpful.

PLEASE TURN OVER

QUESTION ONE

- (a) Suppose that a consumer consuming only two commodities X and Y has an income M and prices of good X and Y are given as P_1 and P_2 respectively.
- (i) Distinguish between the consumer's budget line and budget set and construct their respective equations. **(4mks)**
- (ii) Given the budget line equation in (a) (i) above, write down, graph the new budget line equation and determine its slope if:
- § The price of both good X and Y is reduced by α . **(2mks)**
- § The government decides to impose Ad-valorem/value tax of β on good X. **(2mks)**
- (b) (i) State and explain the Cardinal consumer equilibrium when the consumer is consuming only one commodity. **(2mks)**
- (ii) From (b) (i) above, derive the Mashallian demand curve. **(3mks)**
- (c) Show that consumer equilibrium conditions both under Cardinal utility theory and Ordinal utility theory are identical. **(5mks)**
- (d) (i) Distinguish between Substitution and Income effects of price change. **(2mks)**
- (ii) Using graphical method, isolate/separate substitution from income effect for a decrease in price of an inferior good. **(6mks)**

QUESTION TWO

- (a) Explain why two indifference curve can not intersect? **(3mks)**
- (b) Consider the following demand function given by;

$$Q = 10 + \frac{M}{10P}$$

Where;

P = Price of good X = 3

M = Income = 120

If price (P) increases from 3 to 4, compute substitution and income effect of price change and comment on the nature of good X. **(6mks)**

- (c) Briefly explain the Revealed preference theory of consumer demand theory. **(5mks)**
- (d) (i) Distinguish between income consumption curve and Engels curve. **(3mks)**
- (ii) Derive using graphical method income consumption curve clearly showing its relationship with consumers demand curve. **(5mks)**

QUESTION THREE

- (a) Distinguish between production in technical sense and production in economic sense. **(3mks)**
- (b) Given the Cobb-Douglas production function;

$$Q = AK^{\alpha}L^{\beta}$$

Where: A, α and β = Constants

Q = Output

K = Capital

L = Labour.

Identify and explain the returns to scale exhibited by the above production function in each of the following cases,

- (i) $\alpha + \beta = 1$ **(2mks)**
- (ii) $\alpha + \beta > 1$. **(2mks)**
- (iii) $\alpha + \beta < 1$. **(2mks)**
- (c) (i) Derive Marginal Rate of technical Substitution of labour for capital ($MRTS_{LK}$) **(4mks)**
- (ii) Explain why the $MRTS_{LK}$ decreases as we move downward along the isoquant. **(4mks)**
- (d) Suppose that $w = 10$ and $r=10$ and the least cost input combination is 3L and 3K to produce 2 units of output(2Q), 4L and 4K to produce 4Q, 4.5L and 4.5K to produce 6Q, 5L and 5K to produce 8Q and 7.5L and 7.5K to produce 10Q. Draw the isocost lines, the isoquants and the expansion path of the firm. **(5mks)**

QUESTION FOUR

- (a) Suppose that the market demand and supply functions of a perfectly competitive industry are given by:

$$Q = 4750 - 50P$$

$$Q = 1750 + 50P$$

- (i) Draw the demand curve for one of the 100th identical perfectly competitive firm in this industry. **(3mks)**
- (ii) Write the equation for the demand of the firm in (i) above. **(2mks)**
- (b) Why might a firm remain in business in the short run even if incurring losses, but will always leave the industry if incurring loss in the long run? **(4mks)**
- (c) Explain by aid of diagrams, the efficiency and welfare losses resulting from the monopolization of a perfectly competitive industry. **(4mks)**
- (d) Consider the following demand and cost functions for a monopolist:

$$p = a - bQ \quad (\text{Demand function})$$

$$TC = cQ \quad (\text{Cost Function})$$

Find the Profit maximizing level of output and price in terms of constants a , b and c . **(5mks)**

QUESTION FIVE

- (a) Why is there no general theory of Oligopoly? **(4mks)**
- (b) Consider a duopoly market demand and cost functions below:

$$P = 100 - 0.5Q \quad (\text{Market Demand function})$$

$$C_1 = 5Q_1 \quad (\text{Cost Function for firm 1})$$

$$C_2 = 0.5Q_2^2 \quad (\text{Cost Function for firm 2})$$

- (i) Determine the reaction curves for each firm. **(5mks)**
- (ii) Find the output each firm will produce to maximize profit, market price and output. **(4mks)**
- (iii) Find the level of profit for each firm. **(2mks)**

- (iv) Graph the reaction curves in (i) above. **(3mks)**
- (v) Determine each firm's demand and marginal revenue curves and graph them clearly showing each firm's equilibrium. **(4mks)**